

**WHAT IS CLAIMED IS:**

- 1                   1.       A nonwoven fabric comprising at least two separate but interconnected  
2 layers, each of the layers being provided with discrete interconnections so as to provide  
3 discrete voids between the two layers of fabric.
- 1                   2.       The nonwoven fabric according to claim 1 characterised in that the  
2 voids comprise a channel within the structure of the fabric.
- 1                   3.       The nonwoven fabric according to claim 1 characterised in that the  
2 voids comprise a plurality of channels.
- 1                   4.       The nonwoven fabric according to claim 2 characterised in that the  
2 channels have a substantially cylindrical or tubular shape.
- 1                   5.       The nonwoven fabric according to claim 1 characterised in that the  
2 voids are arranged in a substantially uniform or periodic manner.
- 1                   6.       The nonwoven fabric according to claim 1 characterised in that the  
2 thickness of the nonwoven fabric is from 1 mm to 9 mm.
- 1                   7.       The nonwoven fabric according to claim 1 characterised in that the area  
2 density of the nonwoven fabric is from 40 to 300 g/m<sup>2</sup>.
- 1                   8.       The nonwoven fabric according to claim 1 wherein the voids comprise  
2 discrete channels within the body of the fabric.
- 1                   9.       The nonwoven fabric according to claim 1 characterised in that the  
2 fabric weight is in the range 20-1000 g/m<sup>2</sup>.
- 1                   10.      The nonwoven fabric according to claim 2 characterised in that the  
2 width of the channels are in the range from 0.2 mm to 8.5 mm.
- 1                   11.      The nonwoven fabric according to claim 1 wherein said voids further  
2 comprise functional materials.

1                   **12.**     The nonwoven fabric according to claim **11** characterised in that the  
2 functional material is a member selected from a yarn, filament, wire, wax, gel, liquid, pulp  
3 and particle.

1                   **13.**     The nonwoven fabric according to claim **1** in which the separate but  
2 interconnected layers are formed from a member selected from carded, air-laid, wet-laid,  
3 spun-laid and meltblown webs and combinations thereof.

1                   **14.**     The nonwoven fabric according to claim **1** wherein the layers are  
2 fibrous, and wherein at least two fibrous layers are made of different fibre types.

1                   **15.**     The nonwoven fabric according to claim **14** in which at least one  
2 fibrous layer is hydrophobic and at least one fibrous layer is hydrophilic.

1                   **16.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a member selected from a yarn and a filament and said yarns and filaments are  
3 made of a member selected from natural, man-made and mineral fibres.

1                   **17.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a liquid and said liquid is a member selected from cleaning liquids, detergent  
3 liquids, paints, perfumes, cosmetics, lotions, ointments, liquid nutrients and creams.

1                   **18.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a powder and said powder is a member selected from superabsorbents, cleaning  
3 agents and medicaments.

1                   **19.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a particle and said particle is a member selected from a material called Silica gel,  
3 activated carbon particles, metallic particles, ceramic particles, polymer particles, phase  
4 change material (PCM) particles and seed particles.

1                   **20.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a wire and said wire is a member selected from electrically conductive wires,  
3 shape memory alloy (SMA) wire and optical wires.

1                   **21.**     The nonwoven fabric according to claim **12** wherein the functional  
2 material is a gel and said gel is a member selected from hydrogels, medicinal gels and  
3 hygienic cleaning gels.

1                   **22.**     A method of manufacturing the nonwoven fabric according to claim **1**  
2 which comprises the steps of:

3                   (i)     forming a nonwoven fabric from fibre or filament webs on either side  
4 of a spacer device; and

5                   (ii)    causing fibres in at least one web to be transferred between the gaps in  
6 the spacer device towards the adjacent web (optionally applying the same process to the  
7 reverse side of the fabric) to form an integrated structure.

1                   **23.**     The method according to claim **22** further comprising:

2                   (iii)   using high pressure water jets in combination with a rigid spacer device  
3 to manufacture the fabric.

1                   **24.**     The method according to claim **22** in which the fibre or filament web is  
2 formed by a method, which is a member selected from, carding, carding and lapping, air-laid,  
3 melt-blowing and spunlaid methods.

1                   **25.**     The method according to claim **22** in which two or more fibrous layers  
2 are introduced onto the face and back surfaces of the spacer device.

1                   **26.**     The method according to claim **25** in which the layers are subsequently  
2 conveyed along the upper and lower surfaces of the spacer device and are simultaneously  
3 impacted by high pressure water jets, which interconnect groups of fibres in the layers  
4 between the spacer elements.

1                   **27.**     The method according to claim **23** in which the fibres are mechanically  
2 entangled by the jets to provide structural cohesion in the fabric.

1                   **28.**     The method according to claim **22** further comprising:

2                   (iv)    introducing a functional material into the voids.

1                   29.     The method according to claim 28 in which the voids are protected  
2     from the water jets during step (iii).

1                   30.     The method according to claim 22 further comprising:

2                   (v)     removing the formed fabric from the spacer system at the end of the  
3     process, to leave a 3D fabric structure.

1                   31.     The method according to claim 22 wherein the method is continuous.

1                   32.     The method according to claim 22 further comprising:

2                   (vi)    bonding the fabric thermally.

1                   33.     The nonwoven fabric according to claim 1 characterised in that the  
2     nonwoven fabric is suitable for the controlled release of one or more medicaments.

1                   34.     The nonwoven fabric according to claim 1 characterised in that the  
2     nonwoven fabric is suitable for containing or delivering one or more cleaning fluids.

1                   35.     The nonwoven fabric according to claim 1 characterised in that the  
2     nonwoven fabric is in the form of an absorbent article.

1                   36.     The nonwoven fabric according to claim 35 wherein the absorbent  
2     article is a member selected from a wipe, a wound dressing, a baby diaper component, an  
3     incontinence pad, and a feminine hygiene absorbent pad.

1                   37.     The nonwoven fabric according to claim 1 characterised in that the  
2     nonwoven fabric is suitable for light-weight thermal insulation.

1                   38.     The use of a nonwoven fabric according to claim 1 in the manufacture  
2     of an article.

1                   39.     The use according to claim 38 wherein the article is a member selected  
2     from a medicament delivery device, a cleaning fluids delivery device, an absorbent article, a  
3     wipe, a wound dressing, a baby diaper component, an incontinence pad, a feminine hygiene  
4     absorbent pad and a thermal insulation material.

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**40.** A method of delivering a functional material which comprises the use of the nonwoven fabric according to claim 1.